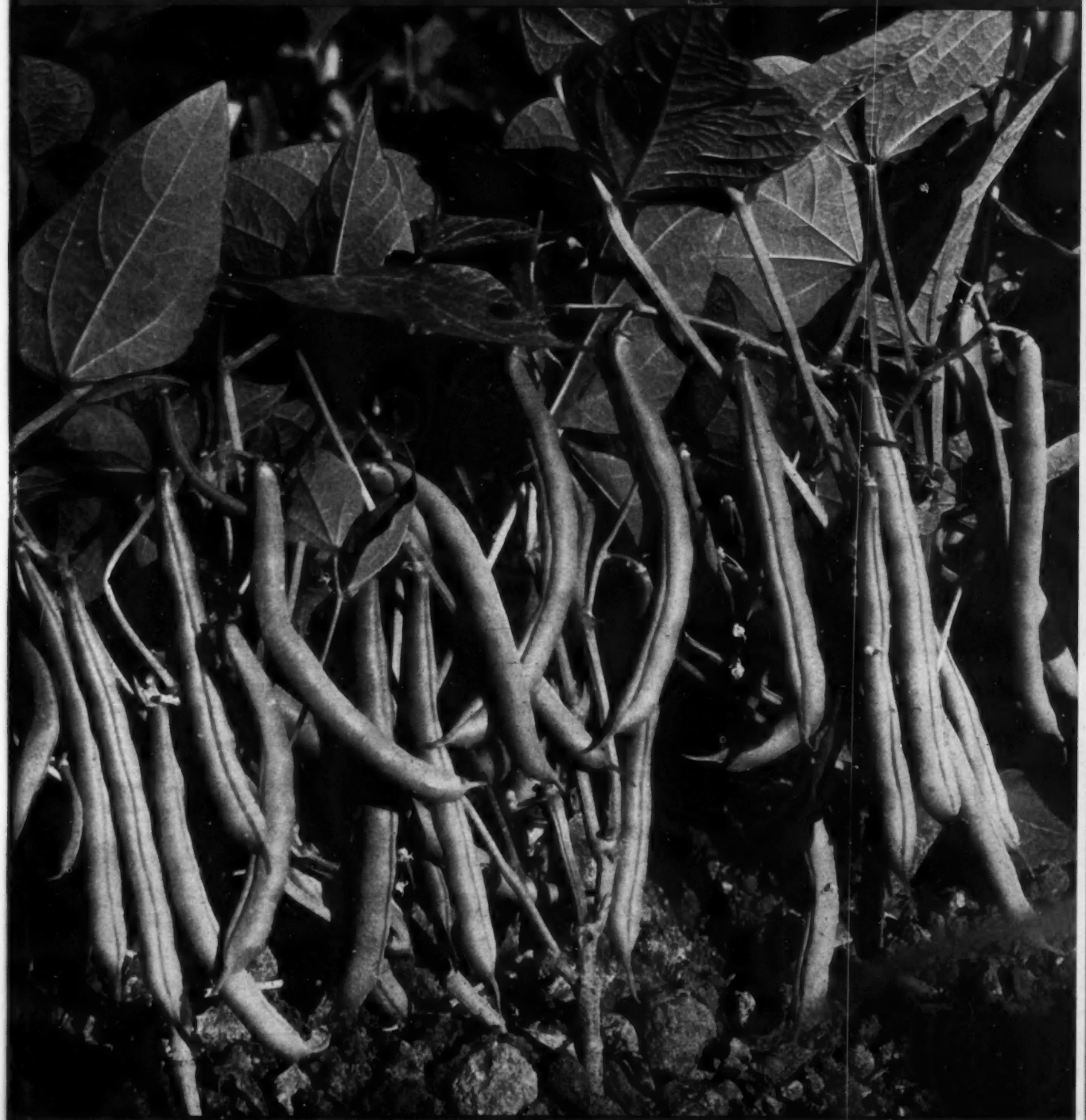
American
Vegetable Grower
FEBRUARY • 1954



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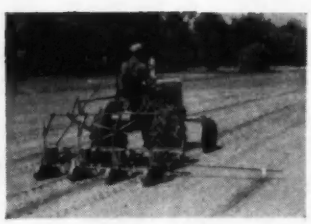
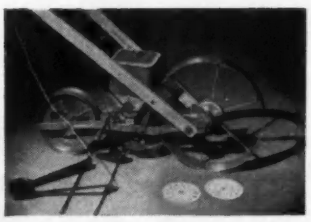


7135X Seeder



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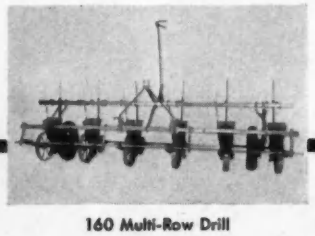

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VEGETABLE GROWER

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(Commercial Vegetable Grower)

Vol. 2 FEBRUARY, 1954 No. 2

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Cover photograph courtesy of U. S. Department of Agriculture

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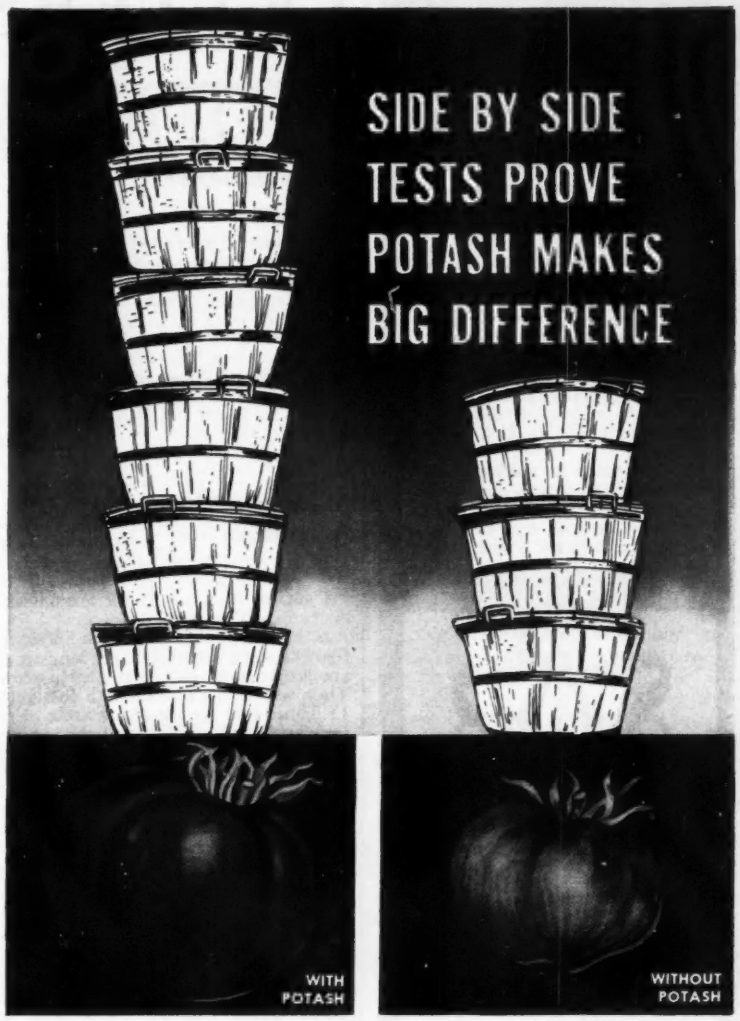

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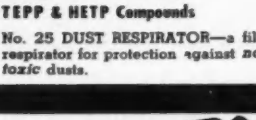

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LETTERS TO THE EDITOR

Widespread Interest in Onion Harvester

Dear Editor:

You will be interested to know that the brief story of ours which you carried on the onion harvester in a recent issue of AMERICAN VEGETABLE GROWER illustrates how very widely your magazine is read.

The owner of the machine told me that he had received letters and telephone calls from more than a dozen different sections of the country, ranging from Michigan and Indiana to Texas and California.

Silverton, Ore. Lillie Larsen

Finds AVG Instructive

Dear Editor:

I am enclosing my check for renewal to AMERICAN VEGETABLE GROWER.

I have found AMERICAN VEGETABLE GROWER very instructive. As long as there are people there will be vegetable growers. They will tend to divide into two groups: 1) Those who are located in areas of dense population and sell direct to the consumer; and 2) those who operate in areas of sparse population, work on an extensive scale of land and machinery, and depend on others to sell their product.

Both groups can be successful if they are fully aware of their respective advantages and limitations and keep informed of each others operations. If their operations complement each other rather than compete with each other all will be well. A haphazard competition can be disastrous to both groups.

AMERICAN VEGETABLE GROWER, in my opinion, has given more information of the above nature than any other farm paper. The man who knows how, when, and where he is going to sell his product can't go far wrong. More power to you!

Eastford, Conn. Edward R. Floeting

Controlling Sprouting in Onions

Dear Editor:

Can you give me some information on a spray that will control sprouting in onions? Do you know where I can buy it?

Saginaw, Mich. Carl E. Rice

Contact Allen Trask, U. S. Rubber Company, Naugatuck Chemical Division, Naugatuck, Conn., for the closest supplier of maleic hydrazide or MH-40 to control sprouting in onions.—Ed.

Wants Addresses of Harvesting Machinery

Dear Editor:

I have been asked by the director of agricultural engineering research of the USDA, Beltsville, Md., to gather information regarding all available vegetable harvesting machinery, either sold commercially or in experimental stages, which I can find. In view of this I would appreciate very much receiving any information which you may have now or may receive in the future, either literature or address references, on harvesting machinery which you may know about.

Shafter, Calif. H. F. Miller

If any of our readers have any harvesting machines which are in experimental stages or which they are now using, you can write directly to Mr. Miller at the following address: U. S. Cotton Field Station, Route 1, Box 17, Shafter, Calif.—Ed.

Stress Farm Safety With Children

Dear Editor:

The files of the National Safety Council contain far too many stories of the tragedies resulting from children riding upon or operating intricate farm equipment. Children have neither the strength nor the judgment to cope with emergency situations, especially with power equipment. There are other hazards, also, that bring about needless accidents to children.

The National Conference for Farm Safety has been studying this problem for several months and plans are being made for long-range emphasis on child safety as related to agriculture. This will include not only the farm machinery aspects of the problem, but also all phases of farm life affecting child safety.

The following four-point program has been suggested:

1) Secure better statistics on child accidents.

2) Prepare materials for use in child accident prevention programs.

3) Greater publicity, to include radio and television.

4) Recognition for results achieved in this field.

The Farm Division of the National Safety Council believes coersion and compulsion are not satisfactory substitutes for education. But persistent violation of common sense practices is the surest way to bring about undesirable legislation. The Farm Division sincerely hopes that through effective farm safety education parents and others will realize the importance of adequately protecting children against unnecessary hazards.

National Safety Council
Chicago 11, Ill. Maynard H. Coe

Potato Seed Cutting Machines

Dear Editor:

Could you give me information on some good potato seed cutting machines? I would appreciate having their names and addresses.

Wasco, Calif. G. A. Wittmayer

Following are a few companies which you might contact: Troyer Manufacturing Co., Smithville, Ohio; Singer Manufacturing Co., Smithville, Ohio; Lockwood Graders, Inc., Gering, Neb.; Midway Machine Co., Albert Lea, Minn.; and Hise Manufacturing Co., Gering, Neb.

The VEGETABLE Situation

ACCORDING to the USDA, production of commercial vegetables for fresh market during the winter season of 1954 will be only slightly smaller than last year. Cabbage, carrots, and celery show the greatest tonnage reductions.

Growing conditions in Florida, due to low temperatures, were generally unfavorable for vegetables. Practically all crops in this state show reduced yield prospects. As a result of several heavy frosts in late December in California, several crops were adversely affected.

SNAP BEANS

Florida crop will be 11 per cent under that of last year, according to estimates. Early winter acreage in Everglades is in poor condition as a result of adverse weather in December.

BEETS

Indicated production is somewhat under that forecast earlier. Unseasonably cool weather in December caused top damage and resulted in slow growth for young plantings in Texas. Unfavorable market conditions have resulted in some economic abandonment in the form of partially harvested fields.

BROCCOLI

Prospects for the winter crop are good. In Texas, the crop is reported in good condition in all areas. Movement in good volume is expected through March.

CABBAGE

Prospects for the winter crop have declined because of lower yields in Texas and Florida. In Texas, cold weather during the latter part of December retarded growth, causing small heads. Reduced yields in Florida were caused by the low temperatures in mid-December and excessive moisture in some sections.

CAULIFLOWER

Production is indicated at slightly under that of last year. Adverse weather conditions in Florida contributed to the reduced yields. Texas crop is in good condition and harvest is active.

CELERY

Crop is expected to be somewhat under that of last year. Inadequate rainfall has been reported from California and is expected to reduce yields; and because of unfavorable weather, the Florida crop will be under that predicted earlier.

SWEET CORN

Harvest from Florida will probably be a little above last year's. An active harvest is predicted for the Everglades area during March.

LETTUCE

Production will be about the same as last year. In Arizona and California, cold weather the latter part of December curtailed cutting and resulted in smaller sizes. Harvest in Texas will be fairly active during February. Prospects declined in Florida, partly from wide fluctuations in temperatures and partly from excessive rains in some sections. Younger plantings in that state are making fair progress.

ONIONS

Preliminary estimate of early spring onion acreage in southern Texas is 39,500 acres. This is 13 per cent above acreage indicated earlier but is 15 per cent less than acreage planted and harvested in 1953. Conditions were favorable for both seeding and transplanting of the 1954 acreage. Moisture was ample in all areas.

Planting intentions for the late spring crops indicate smaller acreages than last year in all states except Texas. In California, almost all areas are in need of rain, and some places are now irrigating.

EARLY POTATOES

Winter crop is estimated at 25 per cent less than last year's record output. In Florida, acreage is down substantially. In Texas, growth of winter potatoes was virtually terminated by frost in late December.

SPINACH

Production will probably be about the same as last year. In South Carolina, condition is reported as fair to good. Cold weather in Texas has slowed growth to some extent.

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Carrots grown on root knot nematode infested muck land; left, from fumigated area; right, from unfumigated area.

Thrifty Plants with SOIL FUMIGATION

Soil-borne pests which cause plants to be poor producers can be economically controlled

By C. E. DIETER

The Dow Chemical Company

NEMATODES are becoming increasingly more important factors in vegetable production by reducing the quantity and quality of marketable produce. The losses they cause have often been attributed to other factors, such as plant diseases, deficiencies or imbalance of plant nutrients, poor seed or varieties, lack of water and unsatisfactory growing conditions. The practice of growing susceptible crops on the same land year after year has increased the danger of nematode loss to the vegetable growers in many areas. The host range for many plant parasitic nematodes is not known, thus crop rotation may aid in suppressing certain types of nematodes but at the same time favor the development of others.

The transfer of vegetable transplants and potato tubers may carry nematodes from one field to another. When conditions are proper for nematode development the entire field may become affected after a period of years, resulting in reduced production.

Nematodes cause various types of root injuries that interfere with the normal uptake and translocation of essential plant nutrients and water. In some cases the damage caused by light infestations of nematodes can be somewhat reduced by the application of additional fertilizer and water. However, under conditions of heavy infestations little benefit can be derived from such practices.

Nematodes cause damage to the roots by sucking out the contents of the plant cells. Their feeding also causes some mechanical injury, and the salivary secretions which they inject at the time of feeding also affect the roots. The feeding of the root knot nematodes cause galls on the roots of susceptible plants. Root injuries from nematode feeding predispose plants to entrance of plant disease organisms.

There are many nematodes that attack vegetable crops. The root knot nematodes are probably the most widespread and well known. Their presence is easily recognized because of the galls they form on the roots. The root lesion,

(Continued on page 24)

Tractor-mounted chisel-type fumigant applicator of Graves and Howley, Tustin, Calif., used to fumigate land with ethylene dibromide as preplant treatment for limas. Torkel Korling photo.

Plow sole applicator on two-bottom plow.

USDA

W. Atlee Burpee Co.

Above—Hybrid onion seed field just preceding full bloom. Right—Method of closing female cucumber blossom against foreign pollen.

A Look at the VEGETABLE HYBRID PICTURE

New hybrid varieties are on the way. Hybrid vigor can be helpful but there are limitations

By R. E. LARSON

The Pennsylvania State College

THE LAST 10 years have seen a rapid development and use of F_1 hybrid vegetables. A hybrid is an early generation of a cross between different parents, the immediate generation being termed F_1 and the second generation known as F_2. Excepting for sweet corn and onions, however, hybrids still have a long way to go to offer serious competition to vegetable varieties. Nonetheless, the number of hybrids available to growers is increasing annually, a natural consequence to the experimental studies which have preceded their utilization.

It has been found that hybrid vigor is expressed in the crosses of many vegetable crops. Hybrid vigor may be defined as the evident superiority of a cross over the better parent in some measurable character such as yield, earliness, size, or other desirable feature.

Certain studies were initiated as much as 40 to 50 years ago. It was natural to expect that vegetable breeders would accept the challenge to obtain the same benefits for various vegetable crops that had been achieved in the production of hybrid field corn. Hybrid vigor, of course, has long been utilized in tree fruits, small fruits, and other asexually propagated plants. This article, however, will deal with vegetables reproduced from seed.

Assisted by enthusiastic plant breeders and dynamic advertising the term "hybrid" has assumed a position in the eyes of many growers as something which is foolproof. Excellent hybrids have been developed for many vegetable crops, some of which have wide adaptability and many which do not. This should be kept in mind by growers so that the term "hybrid" does not acquire a black eye simply because the grower has tried one which under his conditions has not lived up to advance publicity.

Until recently the species offering the highest possibilities for commercial application of hybrid vigor were those in which a large number of seeds could be produced from a single pollination. It is logical, then, that most attention has been given to sweet corn, tomatoes, eggplants, and the cucurbits (cucumbers, squash, muskmelon, watermelon). Note also that these are crop species which are grown at relatively wide spacings and therefore require only a limited number of seeds per acre of crop grown.

The discovery of various types of sterility in crop plants and their application to the production of F_1 hybrid seed, has removed the restrictions that many seeds would need be produced from one pollination or that in only those crops requiring wide spacing was the use of F_1 hybrids economically practicable. This is particularly true of those crops which are naturally cross-pollinated, such as onion, in which we have seen such a rapid rise in popularity of F_1 hybrids. Also included are cabbage, spinach, carrots, beets, and the cucurbits.

Various experimental reports have indicated that each of these vegetables has shown beneficial responses in the F_1 hybrids between inbred lines. It should be pointed out, however, that

in this naturally cross-pollinated group commercially available hybrids are limited at present to sweet corn, onions, cabbage, and the cucurbits.

The number of hybrid tomato lines available to growers today is exceedingly large and undoubtedly many will become obsolete within a few years. A similar process is continually taking place with pure line tomato varieties. Greater earliness and productivity combined with high quality, of adapted

W. Atlee Burpee Co.

Burpee Hybrid cucumber in trial plots, showing vigor and disease resistance.

F_1 hybrid tomato lines, have proven their worth to many vegetable growers. Early Hybrid, Burpee Hybrid, Early Prolific, Faribo Hybrid, Moreton Hybrid, Eastern States F_1, Fordhook, Keystate, Clinton, Cornelicross, and many others, where adapted, have done exceedingly well.

In spite of the evidence of greater benefits, however, hybrids have not been well accepted by the commercial canning industry except in limited areas. It has been assumed that this was probably due to the high cost of F_1 hybrid seed, and there is evidence that this is partially the case. Because of the high cost and the difficulty in producing large volumes of F_1 hybrid seed, seed from the F_2 or second generation of desirable crosses have been offered for commercial use.

It is possible with the F_2 plants to retain a part of the vigor that is expressed in the F_1 hybrid, and certain F_2 lines such Stokescross 4 and 5, Harvestcross, and Vancross have achieved this. The use of F_1 and F_2 tomato hybrids, however, has not attained what should be expected on the basis of experimental records, and the fact that large quantities of seed are still rather difficult to obtain is a negligible excuse inasmuch as if they were deemed worth while the seedsmen's production ingenuity would see to it that sufficient supply would be made available to meet the demands of the processing trade.

It is possible that plant breeders have not paid sufficient attention to the qualities which make a good processing tomato but have instead emphasized maturity, size, and production. There are certain obvious contradictions to this theory, however, inasmuch as hybrid tomatoes of excellent quality can be obtained. There remains one semi-obvious conditioning factor and that is the variation caused by the influence of environment on the productive capacity of the tomato.

The variation between farms for any one variety in terms of production may be from four to 30 tons per acre in one production area. Obviously the best cultural practices for the growing of tomatoes have not been ascertained or are not being adopted. We might theorize, then, that the growers of processing tomatoes (particularly canning companies that choose the variety and do the plant growing) feel that the time is not yet ripe for the investment in more expensive hybrid seed. No F_1 hybrid has yet been introduced which will overcome the obstacle of poor cultural practices.

F_1 hybrid onions have achieved the distinction, at least in the opinion of Dr. Victor R. Boswell, USDA, as being the most noteworthy advance in vegetable breeding in a quarter century. Commercial production of F_1 hybrid onion seed is achieved by use of a male sterile character that is due to both inherited nuclear and transmitted cytoplasmic factors. The cytoplasmic factor is transmitted only by the female parent.

This discovery in onions was made by Dr. H. A. Jones, USDA, and his co-workers in 1925 and resulted in the introduction of California Hybrid Red No. 1 in 1936. Since that time many new and improved hybrid onion lines have been introduced, and private seed firms today are processing thousands of pounds of F_1 hybrid onion seed at prices that compete with those of ordinary seed. Commercial F_1 hybrids such as Granex, a yellow hybrid between Excel and Texas Early Grano 951; Sweet Spanish types Y-41 and Y-42; Autumn Glory which is similar to Early Yellow Globe; and Hybrid No. 7 are defi-

USDA

Field of yellow onion hybrid Granex F_1. Workers are clipping tops and roots.

nitely more uniform in size, shape, and color and are highly productive.

It has frequently been suggested that it should be possible to combine resistance to two or more diseases into a F_1 hybrid line, an accomplishment which has seldom been obtained in pure line varieties. The introduction of the Burpee Hybrid Cucumber probably has come as close to achieving this as any other variety or hybrid introduced.

By concerted effort in collecting strains, purifying, hybridizing, and testing, a hybrid was obtained which according to experiment stations and growers' reports shows a high degree

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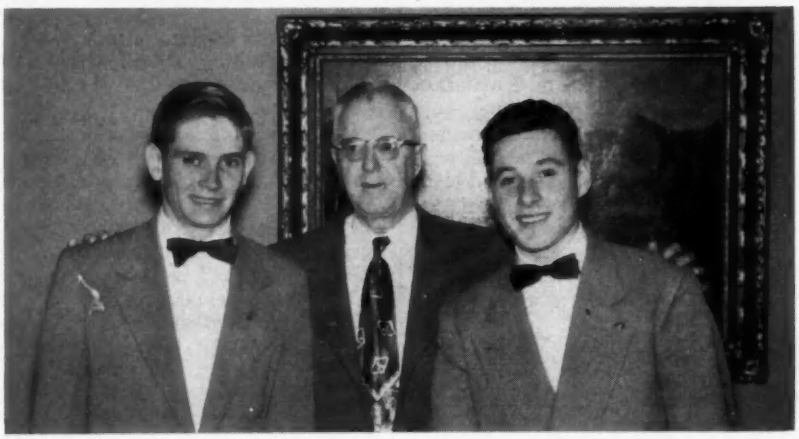


Winners of a special top award for soil fertility in the National Junior Vegetable Growers Association demonstration contest were Henry Rolfe, Newbury, Mass. (left), and Walter Paszko, Haverhill, Mass. (right), shown with Coach C. M. Stearns, Danvers, Mass., county agent. They demonstrated how to test the fertility of the soil.

Keep Your Eye on JUNIOR VEGETABLE GROWERS

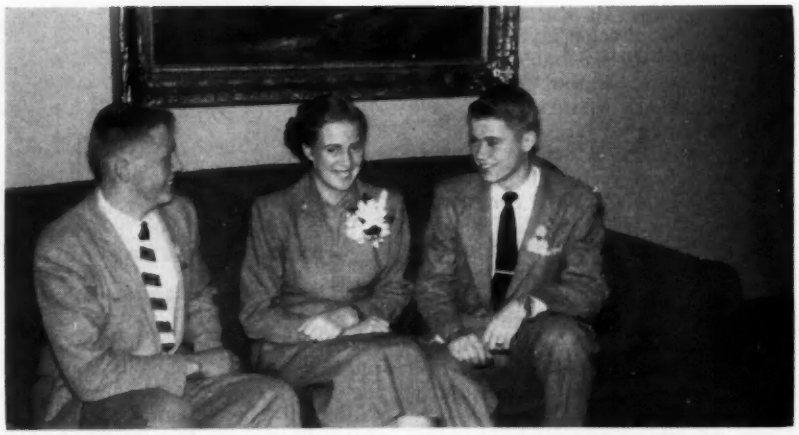
The Younger Generation is rarin' to go!

By R. T. MEISTER

VISITORS to the demonstration and judging contests sponsored by the National Junior Vegetable Growers Association came away shaking their heads in wonderment. For the juniors between the ages of 13 and 21 are learning vegetable production from the ground up and, what is more, their learning isn't just theory—it's good, practical dirt farming based on actual experience.

For instance, this year's champ of Production and Marketing is John Howard Perry of Muskogee, Okla. Last year John grew and sold the production from four acres of sweet corn, four acres of cantaloupes, three acres of spinach, two acres of green beans, and two acres of Boysenberries. These vegetables and berries were worth $3,761 as sold at his roadside market and they netted him a nice profit of $1,559.

Over 500 junior growers took part in the recent convention at Tulsa, Okla. From 35 states they came, anxious and eager to try their newfound skills. Formed to promote an educational program of projects and activities for youth who have an interest in the culture, marketing, or utilization of horticultural crops the NJVGAA was started in Hartford, Conn., in 1935.



Winners in the soil fertility essay contest held in co-operation with the American Plant Food Council were Irene Scott, Littleton, Colo., shown with Jimmy Chastain, Rogers, Ark. (left), a state winner, and Dwight Abbott, Indianapolis, Ind., a regional winner.

The program as it has been developed over a period of years gives vegetable youths a fine opportunity to learn about the vegetable industry in a practical way and at the same time to develop qualities of leadership and the ability to work together with boys and girls from all sections of the country.

The program is financed by the NJVG Foundation which provides an opportunity for business, industry, civic, farm, and service organizations to co-operate in promoting the educational projects of the association. Chairman of the foundation and adult advisor of the association is Prof. Grant B. Snyder of the University of Massachusetts, Amherst.

Two teams tied in the vegetable judging, grading, and identification contest. Ohio and Indiana both scored 2,806 points out of a possible 3,000 and will share the Snyder trophy, a plaque presented by Grant Snyder, adult leader of the association. Winners are, from left: Fred Dorow, William Oebker, and Marvin Gundersen, all of Avon, Ohio; Carl Deeds, Ohio coach; Dale Schinbeckler, Indiana coach; and Donald Rose, Gene Flickinger, Wyman Wert, all of Kendallville, Ind.

Royal J. Haskell of USDA, adult advisor, presenting award for top scores in judging, grading, and identification contest to Marvin Gundersen, Avon, Ohio.

Adolph Junginger of W. Atlee Burpee Seed Co. presents prize to demonstration contest winners Leon Allen (left) and Kermit L. Braswell, Roanoke Rapids, N. C. Coach H. M. Wilkinson, assistant Halifax County agent in background Winners showed how to grow tomato plants in flats.

Winner of the 12th annual production and marketing contest with a $300 scholarship was John H. Perry (center), Muskogee, Okla. To the left are regional winners Stanley J. Pieczarka, Jr., Agawam, Mass., and Betty Swallow, Hamilton, Mont.; to the right, Joyce Verzwyvelt, Alexandria, La., and Jack Armstrong, Springfield, Ill.

Second place winners in the demonstration contest were Annietta Wilson, Rock Cave (left), and Arlene Strader, Crawford, W. Va., who showed how to build roadside stand. Coach F. Taylor, Upshur County agent, is in center.

NJVGAA officers elected for 1954: Seated, from left—Roy Curtiss III, Ithaca, N. Y., president; Nadine Thompson, Lakewood, Colo., vice-president; and Beverly Bishop, Sherwood, Wis., secretary. Standing, from left: Joyce Young, Darling, Miss.; Jack Armstrong, Springfield, Ill.; Buddy Brixey, Agra, Okla.; and Delmar Chase, Lewisburg, W. Va., board members. Left—Collegiate Judging Contest winner was University of Kentucky team, from left: Emma Conder, Mary Ann Huflage, Earl Finn, Coach Ed Klinker.

STATE NEWS

- **Plants Thrive Under Plastic Film**
- **Sugar Sprays Insure Growth of Transplants**

KENTUCKY—Use of irrigation, a regular spray program, and the addition of fertilizers based on soil tests netted for Paul Fehr, Cold Spring, a return of $1,288 per acre from late tomatoes, in spite of the severe drought of 1953.

Polyethylene plastic film has shown great promise in Kentucky as a plant protector for early planted tender crops such as tomatoes. In addition this film has been used successfully as a substitute for glass in hotbed sash with great reduction in sash weight.

Several growers have constructed temporary greenhouses of lightweight, cheap lumber and have covered them with plastic film at only a small fraction of the cost of constructing a conventional greenhouse. Recovering with film each year is required, but this expense probably will not exceed the yearly upkeep of conventional houses.

The Kentucky department of horticulture plans considerable new research in the field of plastic film for vegetable production. Plant growth under this plastic film has been excellent.—*J. Edward Klinker, Assoc. Hort., Lexington.*

INDIANA—Members of the Indiana Vegetable Growers Association met at Purdue University, Lafayette, on January 6 for their annual winter meeting with the agricultural extension service. President Lester McCrosky of North Judson presided and Prof. J. S. Vandemark of Purdue's horticulture department and assistant secretary of the association arranged the program.

Staff members of Purdue's horticulture department brought the visiting growers up-to-date on experimental work being conducted there and gave them recommendations for ways to grow vegetables more efficiently this year. Dr. Leslie Hafen suggested the following tomato varieties: For first early—Early Giant Hybrid, Moreton Hybrid, Alpine x Stokesdale cross, and Stokesdale x Bounty cross; second early—Stokesdale, Burpee Hybrid 1132, Stokesdale Cross No. 1; main crop—Purdue Hybrid No. 1361, Boon, Kokomo, Rutgers, and Rutgers x Pritchard F_1 and F_2 hybrids. The latter F_2 cross is not suitable for staking.

Prof. M. O. Thomas reported on other vegetable variety trials at Purdue last season. Among varieties which look promising are Topcrop green bean; Marketer, Burpee Hybrid, and two Pennsylvania hybrid cucumbers; Purdue Hawksbury watermelon; Golden Security, Golden Harvest, and Huron sweet corn; Oklahoma No. 46 sweet potato; and Emerson celery.

Leaf feeding was the subject of the talk by Dr. G. F. Warren. He pointed out that all elements can be absorbed through the leaves of plants but often the amounts so absorbed are minute and not sufficient to maintain plant growth. This is especially true of nitrogen, phosphorus, and potassium. The elements must be in the right form for absorption, too. Some will cause injury to the leaves if applied in very strong concentrations.

Secretary of Agriculture Ezra T. Benson will be given a testimonial dinner by the Vegetable Growers Association of America on Thursday evening, February 11, during the organization's second annual Washington workshop.—A. Lee Towson, Jr., Pres., VGAA, Seabrook, N. J.

One place where foliar feeding is important, Warren pointed out, is in the application of such minor elements as manganese and iron and sometimes magnesium. Another place where foliar applications might be practical is in the replacement of side dressing with nitrogen. With crops that are sprayed regularly, the nitrogen fertilizer can be mixed with the spray and applied in one operation, thus eliminating an additional operation.

Dr. Warren further discussed the use of sugar sprays on plant beds before transplanting. Tests at Purdue and elsewhere indicate this to be a beneficial practice. Dr. Warren suggests spraying beds of such plants as tomatoes, cabbage, and others, with a five per cent solution of sugar, twice, about a week before pulling the plants. Livability of such plants has been much greater than those not treated, especially if the season is adverse.

The advantages of using liquid fertilizers in vegetable production were discussed by John Strauss, agronomist with the Liquidizer Corp., Vincennes, Ind. He cited these advantages of liquid fertilizers over the use of ordinary dry forms: 1) they require less labor and time to apply; 2) application is convenient; 3) they are less corrosive on equipment as they can be easily washed out with water when the job is done.

The following were elected to office for 1954: Lester McCrosky, North Judson, president; Ernest Vehling, Indianapolis, vice-president; Keith Owens, Jr., Terre Haute, second vice-president; Fay Gaylord, Lafayette, secretary; and Joe Vandemark, Lafayette, assistant secretary.—*Eldon S. Banta.*

WISCONSIN—Considerable interest is developing in both direct-seeded and transplanted celery as a muck soil crop for Wisconsin. The proper selection of varieties, as with other vegetables, is an important factor in determining success. The self-blanching or yellow varieties because of their shorter season lend themselves very well to direct-seeding. The green varieties on the other hand serve best when handled as a transplanted crop. The following varieties are suggested for Wisconsin growers:

Cornell 619—A self-blanching type with

During recent Iowa State Vegetable Growers Association annual meeting at Mason City an outstanding grower and two noted onion breeders were snapped while discussing the 12 new onion varieties recently released by the USDA. From left: D. F. Franklin, superintendent, Branch Experiment Station, Parma, Idaho; C. E. Peterson, Iowa State College; Sam Kennedy, Clear Lake, Iowa.

a thick petiole. In many respects this is the most outstanding self-blanching variety available to growers. Resistant to Fusarium yellows.

Cornell 19—A yellow or self-blanching type similar to Cornell 619, but does not have as thick a petiole. This variety is also resistant to yellows.

Michigan Golden—Another self-blanching type also resistant to Fusarium yellows. The self-blanching types are desired rather than the green types by the processing industry.

Golden Plume—A standard non-resistant self-blanching variety. This is a relatively short-season type, therefore lending itself to direct-seeding purposes.

Utah 52-70—A medium petioled type, but a heavy producer with excellent table quality. The green types are very popular on the fresh market.

Summer Pascal—A short growing green type celery with thick petioles and outstanding table quality.

Emerson Pascal—A long petioled, heavy-producing green type celery. This variety has been an attractive, fine-cut, leaf type rather different from other varieties.—*John A. Schoenemann, Ext. Spec. Veg. Crops, Univ. of Wisconsin, Madison 6.*

MASSACHUSETTS—One of the difficulties usually experienced in the culture of onions grown from sets is that 10 to 20 per cent of the plants bolt, that is, send up seed stalks. Most onion growers snip off the flower buds to prevent flowering and seed production. This process requires the labor of at least one man for one day per acre.

W. H. Lachman and E. F. Upham of the University of Massachusetts report that recent tests made at the university show that where the sets are kept for certain periods in warm storage in combination with cold storage before planting, the production of seed stalks is reduced significantly and may be prevented altogether. For example, large sets stored at 86° F. for 16 weeks produced plants which bolted only two per cent as compared to 85 per cent bolting from sets stored at 32° F.—*C. L. Thomson, Ext. Spec., Amherst.*

FLORIDA—Growing conditions during the second half of December were generally unfavorable. Planting of late winter crops continued to be active in the south Florida area. Preparation of land and planting of some spring crops is also underway in the southern part of the state. There is progress and planting of a few crops in the central and northern parts of the state.—*George Talbott, FFVA, Orlando.*

MARYLAND—About 100 growers attended the meeting of the Maryland Vegetable Growers Association in Baltimore on January 7. Topics discussed included liming, irrigation, mechanical aids to harvesting, and the Baltimore market.

Newly elected officers are: A. Morris Todd, Jr., Dundalk, president; John S. Parker, Salisbury, vice-president; and Francis C. Stark, Jr., College Park, assistant secretary-treasurer.—*Andrew A. Duncan, Sec'y, College Park.*

GEORGIA—The grower of sweet corn for shipping is looking for a high yield of large ears, free from corn ear worm damage, and of a quality and appearance acceptable to the consuming market.

In many sections of the commercial corn growing areas, Ioana is still the leading variety. Last year many growers gave Calumet a good try and really liked it. More will be planted this year.

Huron, an Asgrow hybrid, noted for its high yield of attractive large ears, has also been rated extremely high in southern trials.

(Continued on page 14)

are Thumbs Up WITH VEGETABLE GROWERS!

Since 1885, Stauffer has been producing quality pesticides according to exacting specifications. That is why growers everywhere know that, pound for pound, Stauffer branded products give better protection because they are *always* the same high quality. Here are insecticides and fungicides that you can *depend* upon for spraying and dusting schedules:

CAPTAN 50-W

(Fungicide 406)

The exceptional new organic fungicide for vegetables... effectively controls a variety of fungi on tomato, potato, carrot, cucurbits, celery, spinach, and onions... assures superior yields of outstanding size.

MAGNETIC "90"

Microfine Dusting Sulphur... free flowing ... formulated especially for use during light, misty rains.

MAGNETIC "95"

Microfine Wettable Sulphur... of maximum effectiveness... use it as spray or dust!

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"With concentrate spraying I got premium potatoes and saved time and labor besides," says FRANK SORANO
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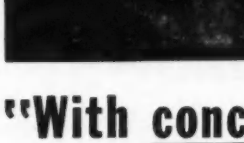
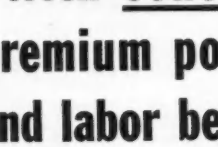


Field Crop Concentrate Sprayer



Field Crop Concentrate Blower Attachment

Reports from other important growers tell similar success stories . . . "high quality yields", "fewer days spraying", "better disease control", "no extra spraying help".

● Concentrate spraying the Myers way takes less time because it requires only one-fourth the water needed by a dilute rig. Fewer stops for water can save hours a day . . . hours for doing other essential jobs.

● Field spraying with concentrate equipment is easier too, because there are no awkward booms to handle. With a Myers concentrate rig, the tractor operator can easily adjust the spray pattern to cover rolling ground contours, assuring good spray penetration of the plant foliage.

Ask your Myers representative more about the field-proven Myers concentrate sprayer

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THE F. E. MYERS & BRO. CO.
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CALENDAR OF COMING MEETINGS AND EXHIBITS

Feb. 1–3, 1954—39th annual meeting Ohio Vegetable and Potato Growers Association, Commodore Perry Hotel, Toledo—E. C. Wittmeyer, Ohio State Univ., Columbus 10.

Feb. 3—University of Massachusetts Vegetable Day, Amherst.—C. L. Thomson, Ext. Veg. Spec., Amherst.

Feb. 4–5, 1954—University of Wisconsin Farm and Home Week vegetable crops program in conjunction with Wisconsin Muck Farmers' Assn. annual meeting, University of Wisconsin, Madison. —O. B. Combs, Sec'y, Madison 6.

Feb. 10–11—Suffolk County Potato Growers' 22nd annual convention, Polish Hall, Riverhead, L. I., N. Y.—Walter G. Been, Sec'y, County Agr. Agent, Riverhead, L. I., N. Y.

Feb. 16—Southeastern Wisconsin Area Potato Growers meeting, Milwaukee County Agricultural Agent's Office, 9035A Watertown Plank Road, Milwaukee 13.—John A. Schoenemann, Ext. Spec., Veg. Crops, Univ. of Wis., Madison 6.

Feb. 18–20—Watermelon Growers and Distributors Assn., Shamrock Hotel, Houston Tex.—J. J. Parrish, Sec'y-Treas., Adel, Ga.

Feb. 24—Area Vegetable Growers Meeting, Milwaukee County Agricultural Agent's Office, 9035A Watertown Plant Road, Milwaukee 13. —John A. Schoeneman, Ext. Spec., Veg. Crops, Univ. of Wis., Madison 6.

Feb. 25—Area Vegetable Growers Meeting, Racine and Kenosha Counties, Gas and Electric Company Auditorium, Racine, Wis.—John A. Schoenemann, Ext. Spec., Veg. Crops, Univ. of Wis., Madison 6.

Apr. 6–8—University of Maine Farm and Home Week, Orono. Apr. 6—Home Vegetable Garden in A.M.; Market Garden all day; Apr. 7—Processing Crops.—Robt. W. Paulson, Veg. Spec., Orono.

STATE NEWS

(Continued from page 15)

The standard of comparison, Aristogold Bantam Evergreen, is still planted by many and is considered as best by some experiment station workers.

In tomato varieties, commercial growers will plant mostly the Rutgers for greenwrap shipping this season.

The Manalucie variety of tomato was released in Florida in March, 1953. It is a promising large-fruited, late season stock which is resistant to Fusarium, Alternaria blight, and grey leaf-spot.—*Raymond Sheldrake, Jr., Ext. Veg. Spec., Athens.*

MICHIGAN—The research committee of the Michigan Vegetable Council has been working, under the leadership of Chairman Roy Burghart, Greenville, to assemble a list of the research projects which Michigan vegetable growers feel most seriously need attention. An excellent list was prepared and presented to Michigan Agricultural Experiment Station Director L. M. Turk at a recent luncheon meeting. In addition to Dr. Turk and Assistant Director Roy Marshall, heads of all departments concerned with any phase of vegetable research were guests of the council.

Mr. Burghart stressed the point that the list was in no way meant to dictate research programs but was intended as a source of suggestions and guide to research workers. Forrest Smith, MVC president, suggested that a similar meeting be held next year, at which time progress on any or all of the suggested projects could be reported and discussed.—*J. W. Rose, Ext. Hort., East Lansing.*

NEW YORK—"We may have had a bad year, but we're ready to meet the challenge of 1954," seemed to be the consensus of opinion displayed by the hundreds of forward-looking vegetable and potato men and their wives who met in the Syracuse, N.Y., War Memorial for their 19th annual joint convention January 6-8.

Re-elected to head the New York State Vegetable Growers for another year are the following: President, John Wickham,

Cutchogue, L. I.; secretary-treasurer, William B. Giddings, Baldwinsville; vice-presidents, Austin Avery, North Syracuse; Henry Marquart, Jr., Cherry Creek; Huested Myers, Albany; Don Shoemaker, Rochester; and Otis Davis, Prattsburg.

John Coulter, Canastota, was re-elected head of the Empire State Potato Club. Serving with him are Vice-President Wilbur Van Maaren, Honeoye Falls, and Secretary-Treasurer Leon H. Mehlenbacher, Wayland. New directors of the club include Lucian Hills, Wayland, and Karl Hoffman, Spring Valley.

Highlight of the opening session of the convention was a talk by Dean William I. Myers of Cornell's College of Agriculture entitled, "What's in the Future?" Dean Myers is known nationally as chairman of the National Agricultural Advisory Committee.

Commenting on this past year's squeeze on producers in the Northeast, Dean Myers said that New York State farmers' returns have averaged only 84 per cent of parity though the average for the entire country has been about 93 per cent. Reaction from the Korean boom and decline in export demand for wheat and cotton are responsible in part for this downward trend.

High support prices, especially on grain and cotton, have resulted in unbalanced farm production, he believes. New York farm prices have declined 24 per cent since June, 1952, but farm costs are nine per cent higher than they were at that time.

Dean Myers looks for a sidewise movement in farm prices this year with minor ups and downs. He feels that there may be modest reductions in some farm costs because of keen competition among business firms for the farm dollar. The long term outlook is more favorable because of the high rate of increase of the nation's population.

Also appearing on the program was James Swan, Jr., Delavan, Wis., 1st vice-president of the Vegetable Growers Association of America. Mr. Swan operates about 500 acres of muck. He feels that the future of vegetable growers depends on their working together through their national organization and their state and local groups.

VGAA President A. Lee Towson, Jr., of Seabrook Farms, New Jersey, and Past President Walter Pretzer of Cleveland spoke briefly telling of the aims and accomplishments of the national organization.

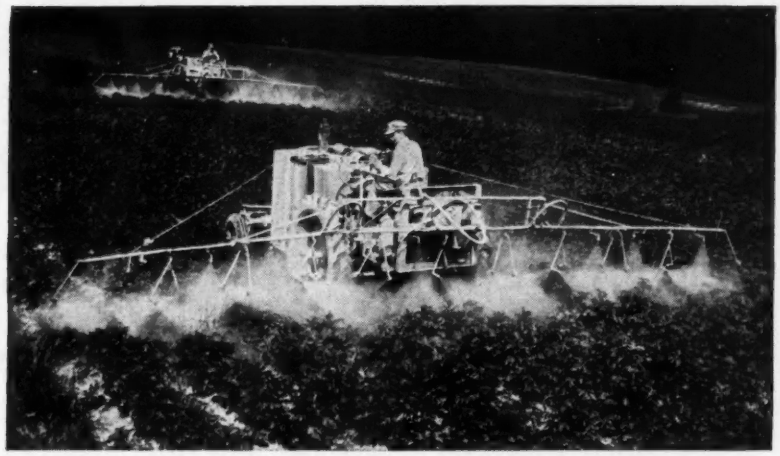
Center of interest wherever they appeared were the two New York state queens. Potato Queen JoAnn Eaton of Hubbardsville is the daughter of Mr. and Mrs. Fred Eaton. The Vegetable Queen is Miss Susan Avery of North Syracuse, daughter of Mr. and Mrs. Austin Avery.—*Dorothy S. Porter.*

R. L. Nicolai

OHIO—Robert L. Nicolai and Gilbert J. Kirwan have been named district representatives for the Gorman-Rupp Company of Mansfield, manufacturers of engine- and motor-powered pumps. Mr. Nicolai will serve as a liaison between factory and distributor in the northwest division, while Mr. Kirwan's headquarters will be in Atlanta, Ga.

The appointments are part of the sales and service expansion program of Gorman-Rupp in keeping pace with business, particularly with reference to pumps for the irrigation, the construction, and the petroleum fields.

G. J. Kirwan



For high yields and low-cost blight control...

There's nothing better than Du Pont "Parzate" fungicide. Potato and vegetable yields go up when you control blights and other diseases with "Parzate." It's a mild, effective chemical that does the job without stunting or burning . . . gives your crops vigorous growth and increased yields!

Use "Parzate" for potatoes, onions, tomatoes, celery, spinach, melons, cucumbers, beans, peppers, sweet corn and other vegetables. There's "Parzate" liquid for quick-mixing sprays, or "Parzate" dry for sprays or dust mixtures.

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For many special insect-control problems use the performance-tested insecticide

"Marlate" methoxychlor does the job effectively and safely. You get both contact and residual control. Its low toxicity to humans permits use within 7 days of harvest.

On cucumbers, squash, melons, "Marlate" controls both striped and spotted cucumber beetles, squash vine borer and pickleworm without injuring these sensitive plants.

It is excellent for Mexican bean beetle and leafhoppers or snap and lima beans. On DDT-resistant Colorado potato beetles, leafhoppers and flea beetles, "Marlate" has given outstanding control.

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On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

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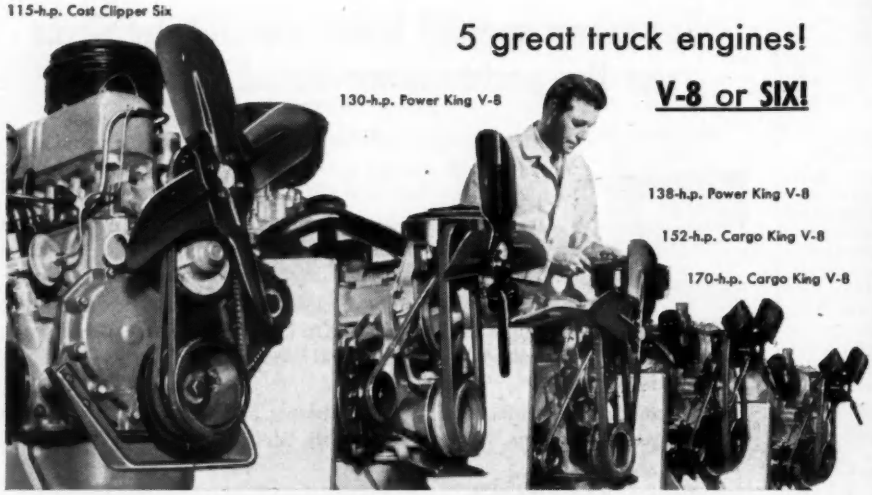
TRIPLE ECONOMY

It's the biggest truck news of '54

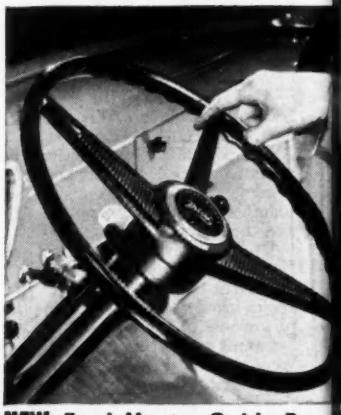
Never before have so many important advancements been made in all the 3 biggest truck savings-areas as appear in the NEW Ford Trucks for '54! The mightiest concentration of power per cubic inch ever built into any truck engine line! Better working facilities for the driver. Bigger capacities too!

New Ford Trucks for '54 offer important *money-saving* advancements you just can't get in any other trucks. Take engines, for example. For the power they develop, Ford Truck engines for '54 have less cubic inch displacement than engines in other-make lines.

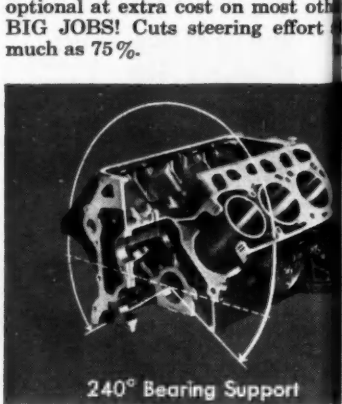
For instance, Ford's 239-cu. in. *Power King* V-8 develops its 130 h.p. on as much as 43 cubic inches less displacement. *Every cubic inch of displacement in an engine is a "hungry inch" that demands gas.* Small-displacement engines normally need *less* gas. And that's only *one* big factor behind Ford Truck *Triple Economy* for 1954.



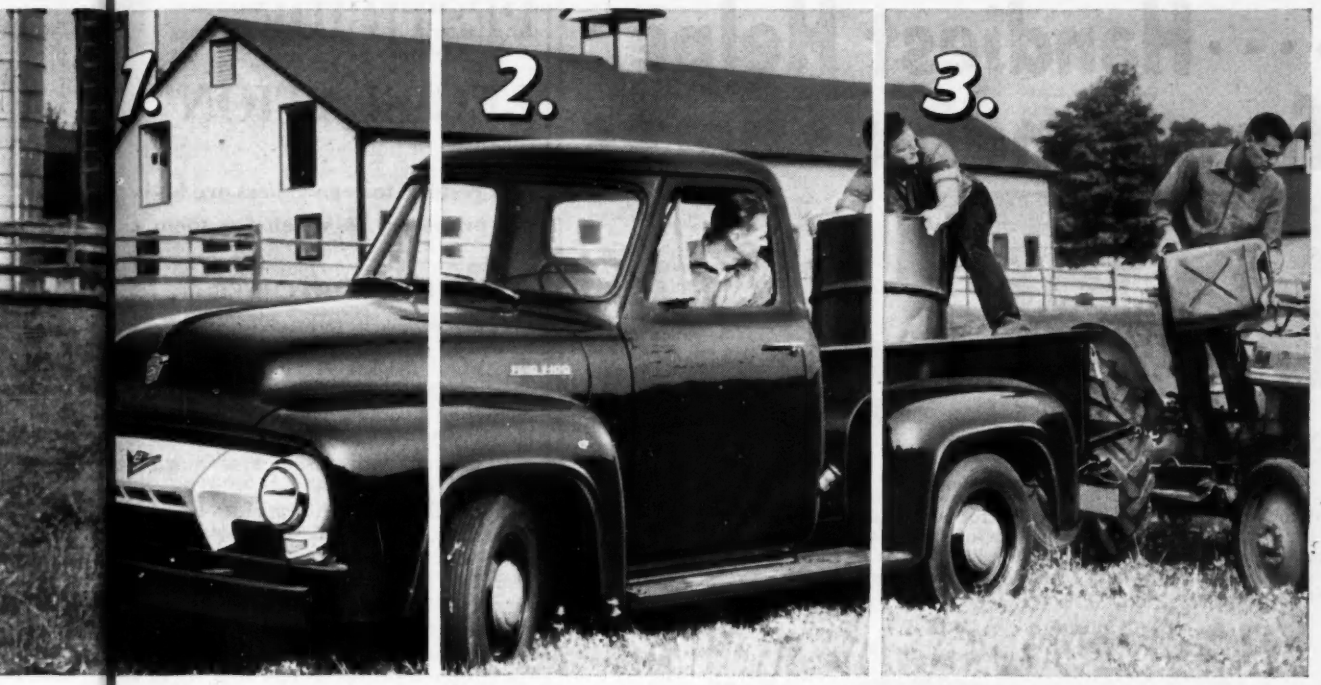
Only Ford gives you Gas-Saving, LOW-FRICTION, High-Compression, Overhead-Valve, Deep-Block engines in ALL truck models! All with advancements like Ford-designed overhead rotating valves for longer valve life, short-reach manifolds for higher breathing efficiency.



NEW Ford Master-Guide Pow Steering standard on Series T-8 optional at extra cost on most oth BIG JOBS! Cuts steering effort much as 75%.



Smooth power! NEW Deep-Bl design! Ford engine blocks have de skirt crankcases, wide-base flywh housings, for high structural rigid



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2. NEW 3-MAN DRIVERIZED CABS for easier, safer control! For economy that results from keeping the driver *fresh* on the job! Exclusive Ford seat shock snubbers. New woven plastic upholstery "breathes" like cloth. Huge curved one-piece windshield for visibility unlimited!

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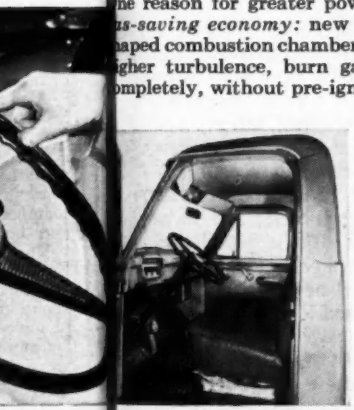
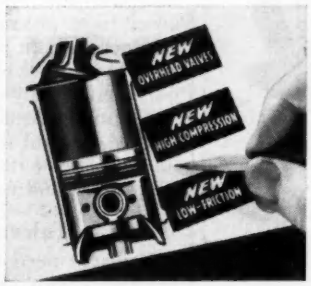


uide Pow Ford has DRIVERIZED Series T-80 **comfort!** Deluxe Cab on most oth n has foam rubber seat ring effort ing, plus 15 other custom s (at extra cost).



NEW Ford engines reduce friction losses up to 33%! Short-stroke design cuts internal friction, delivers more usable power per gallon of gas.

NEW Fordomatic Drive saves driver time and energy. Fully automatic! No clutching! No shifting! Available in all Ford light-duty models for '54.*

NEW Vacuum Boosted Power Brakes now available on half-tonners make stopping up to 25% easier.* Pressure needed to stop truck won't break light bulb.

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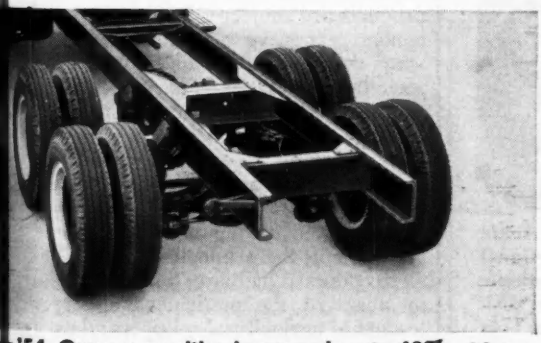

*All items marked by an asterisk in this advertisement are available at worth-while extra cost

Farm Favorite—new F-600 ("2-ton"). Choice of three LOW-FRICTION engines.

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Lowers flat on the ground for easy loading without heavy lifting.

Lifts on the level to full height for travel—no tilting of load.

Constant hydraulic control lifts, lowers, adjusts height for loading and unloading.

Steel frame with stake pockets holds platform, rack sides, tight box, etc.

Backs into close quarters to pick up and deliver loads as desired.

Picks up sprayer, goes to buildings, yards, gardens, fields, orchards.

CASE UTILITY CARRIER

Mounts in a minute on any Case Tractor with Eagle Hitch. Takes the heavy lifting out of farmstead hauling. Carries boxes, bales, crates, barrels—feed, water, spray rig, fencing, posts, lumber, fertilizer. Saves steps, time, strength for you.

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You take a single step to platform . . . settle into the low Bodyguard® seat with torsional rubber springs . . . stay seated for one-minute hook-up of Eagle Hitch mounted plows, disk harrows, other implements, utility carrier. Low profile with tail-pipe exhaust—upright pipes optional. Adjustable tread, front and rear—or dual front wheels if desired. See it at your Case dealer's; send for new catalog. J. I. Case Co., Dept B-214, Racine, Wis.

PESTICIDE LEGISLATION

New residue tolerance laws are being proposed, so watch for them

By LEA S. HITCHNER

National Agricultural Chemicals Association

IF YOU market vegetable produce in interstate commerce (across state lines) you are apt to be affected by recently proposed federal legislation dealing with residues of farm chemicals on all crops.

This bill, called the Pesticides Residue Amendment to the Federal Food, Drug and Cosmetic Act (Miller Bill, H. R. 4277) was submitted to the last session of Congress and is still alive. Hearings were held on this amendment by the House Interstate and Foreign Commerce Committee last July. It is expected that the bill will be reported favorably during this session of Congress.

The bill proposes some changes in procedures to establish tolerances (the maximum amount of pesticidal residues, if any, which will be permitted to appear on vegetables, fruits, and other farm produce sold in interstate commerce). The present law, as it pertains to residues on farm products, has not been rigidly enforced; nor have the administrators of the Food and Drug Act established pesticidal residue tolerances for the new insecticides, fungicides, and weed killers.

Residue Tolerances Are Needed

Growers need these tolerances for guides in their spraying and dusting operations. The industry and agricultural leaders need these residue tolerances upon which to base their directions for use of pesticides by growers. Without these guides, the farmers' products are subject to seizure if they contain excessive pesticidal residues when the farmers' produce appears in interstate commerce. The Miller Bill proposes to correct the uncertainty about the use of pesticides in agriculture and at the same time protect the public health against excessive pesticidal residues.

During the hearing on this proposed amendment, the prinicples of the Bill were endorsed by major farm groups, members of the pesticides industry, leaders of agricultural colleges and experiment stations and horticultural societies. Among those endorsing the principles of the bill were: American Farm Bureau Federation, National Grange, National Apple Institute, In-

ternational Apple Association, New York Horticultural Society, and Entomological Society of America.

Principal Features of Legislation

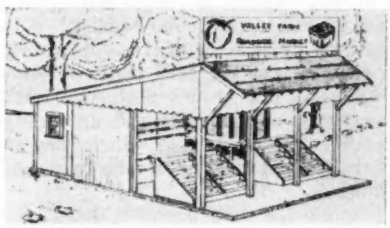
In brief, some of the principal features of this legislation which, in our estimation, make it a worthwhile approach to regulating pesticidal residues are: 1) It treats pesticides separately from chemical additives used in the processing of foods; 2) it treats with the use of chemicals as they are used on the farm; 3) it simplifies the costly procedure to establish the pesticidal residue tolerances which are now necessary under the present law; 4) it requires the issuance of these pesticidal residue tolerances within a reasonable length of time after request for a tolerance is made.

Fundamentally, the adoption of this amendment to the Food and Drug Act will not change agricultural practices used by vegetable growers, but it can heighten the responsibility of the farmer to follow directions for use of these products, carefully, in order to avoid seizure of farm produce due to excessive residues of pesticides.

The burden of establishing the method of use of these products will still remain with the manufacturer who must register his label with the USDA if he sells his pesticides in interstate commerce.

We believe that the adoption of this amendment will eliminate a good deal of the confusion regarding the use of pesticides in agriculture, and that it is a bill in the public interest and in the interest of the industry and agriculture. However, it will require the continued support of all phases of agriculture to bring this amendment to a vote in the House during this session of Congress. THE END

This roadside market, conveniently located so the motorist can readily stop, will make it easy for you to take care of customers quickly. Movable racks make it possible to maintain an



attractive stand in accordance with supply and demand, and the overhanging roof affords protection for the customer. Working drawings for this easy-to-build stand are available for 50 cents from AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

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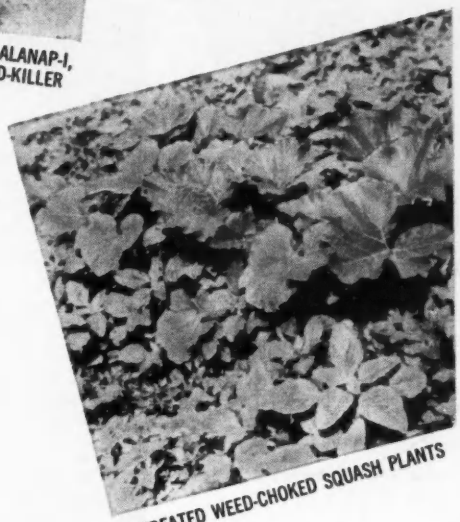

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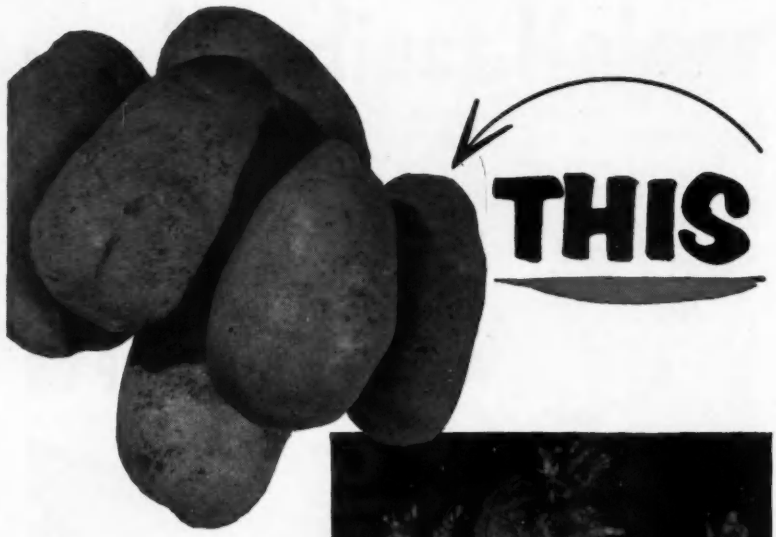

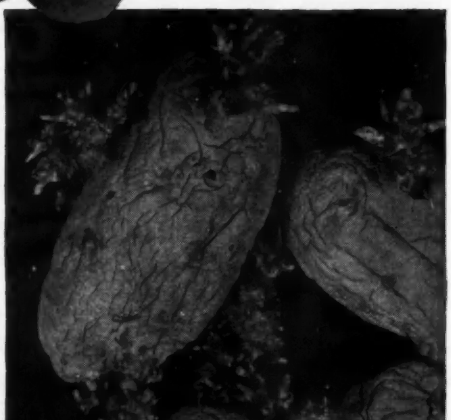

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TRAP-NESTING TOMATOES

Rigid plant selection assures purity of seed

By ELDON S. BANTA

TRAP-NESTING" is a term we generally associate with poultry raising and breeding. However, at Rutgers University in New Jersey the term applies to tomato breeding and variety selection. In principle it really is very similar to the poultryman's practice.

Ever since the outstanding Rutgers variety was produced by Prof. Lyman G. Schermerhorn at Rutgers University in 1934, careful watch over the purity of its seed stock has been carried on by its originator. In brief, the method consists of keeping individual plant production records on a number of plants each year.

From time to time during the growing and harvest seasons, Prof. Schermerhorn, together with his well trained assistants, check every plant in the plots, marking those which should be discarded as well as those which are outstanding. Only those plants which exhibit outstanding Rutgers characteristics are maintained and used for mother seed stock.

High Standards Maintained

The plants must stand up under this rigid roguing on every count, not just high yield. Such factors as color, texture, and size of individual fruits, vine growth and foliage density, blossom period and fruit setting characteristics are among those under constant observation. Improvements in any of the characteristics of the variety are recorded and perpetuated in the new mother seed stock from those particular plants showing the improvement.

This system of perpetuating the purity of a particular variety is a service which Rutgers University performs for the seed trade of New Jersey. The state's seedsmen each year can obtain from the university foundation stock seed which they in turn can use to increase their own seed stock.

Only the two varieties bred and named at Rutgers University are trap-nested under this system, namely, Rutgers and Queens. It seems that this is an excellent project to be conducted by the originator and his institution for the maintenance of purity of those vegetable varieties produced by them. Perhaps this has had considerable to do with the outstanding

Prof. Lyman G. Schermerhorn, head of the vegetable crops division at Rutgers University, New Brunswick, N. J., and originator of the Rutgers and Queens tomato varieties, examines one of the select plants of the Queens variety in his planting of 1,500 plants for high-producing pure mother stock seed. Each plant is numbered and its yield and characteristics are recorded. Only the very best plants are used for producing seed for distribution to seedsmen.

performance of the Rutgers tomato over such a wide area of the country and over such a long period of time. The future of the Queens variety looks equally as promising.

Individual Plant Records Kept

In 1945 Prof. Schermerhorn kept individual records on 800 Rutgers plants, of which only 312 were worthy of being used for mother stock seed. Last year 3,000 plants were grown for the production of general stock seed. Of these only 89 were selected for trap-nesting, and of this number just 11 plants were worthy of being designated as mother plants for 1954. Similarly, out of 1,500 Queens plants, 31 were trap-nested and only eight were considered worthy of being designated as mother plants for 1954.

Such a program of seed stock selection has infinite value to all concerned. You can imagine how many different "strains" of Rutgers might have developed if all plants were used for seed. This is just what happens when a variety is propagated from seed selected at random. THE END

NEW VEGETABLE

AN even dozen growers near Carlsbad in San Diego County are more than pleased at the way the public is taking to the new vegetable "chayote" and they plan increased acreage for 1954. This is one of the new imported crops that is now in about the position that avocadoes occupied in California's agriculture 25 to 30 years ago.—*F. Hal Higgins.*

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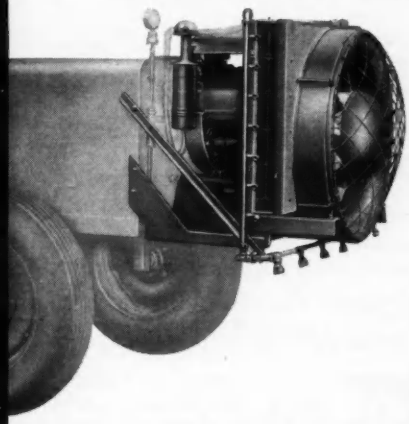

a performance-proven row crop air sprayer

Faster, more thorough coverage with savings in time and spray materials are being reported by every grower who used the SPEEDAIRE during the past season. Dilute, low-gallonage, or concentrate spraying are a matter of choice. Problems of uneven terrain and unwieldy booms can be ignored. The spray pattern can be easily controlled to meet wind and crop conditions. You get all the advantages of modern air-type spraying with this new John Bean Speedaire conversion unit for high pressure field-crop sprayers.

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FLORIDA WAGES WAR

New materials aid in the battle against destructive diseases

By CLYDE BEALE

FLORIDA farmers wage continual — and usually successful — war against mildews, blights, and other insidious enemies of their vegetable crops.

From more than 300,000 acres they harvest vegetables (not including cantaloupes, watermelons, and strawberries) valued at more than $137 million, and their success in growing these crops and realizing this income would not be possible without fungicides and efficient use of them.

Florida's mild climate and high rainfall are conducive to rapid growth of vegetables—and also of certain diseases that attack vegetables, so measures to control diseases are routine.

Research on plant diseases and their control is a major activity at the Main Experiment Station, Gainesville; Gulf Coast Station, Bradenton; Grape and Watermelon Laboratory, Leesburg; Central Florida Station, Sanford; Potato Investigations Laboratory, Hastings; Everglades Station, Belle Glade; and Sub-Tropical Station, Homestead.

Corn Sprayed 15 Times

After it had grown to million-dollar proportions in little more than a decade, Florida's sweet corn was threatened by Helminthosporium leaf blight, but growers are now using nabam-zinc sulfate, zineb, and Manzate with good effect against this destructive disease. Spraying 14 or 15 times at three- to five-day intervals after corn is four to six inches high and to within 10 days of harvest has proven effective.

The spray solution: two quarts nabam and three-fourths pound zinc sulfate to 100 gallons of water; or two pounds zineb to 100 gallons of water; or Manzate as directed by the dealer. As zineb and Manzate are not compatible with some DDT emulsions, four ounces of dried skimmed milk or casein should be added to each 100 gallons of these sprays to eliminate this incompatibility if the grower wishes to combine fungicide and insecticide.

For control of rust and powdery mildew of bush and pole beans, sulfur dust or spray has given good results. For the spray: 10 to 16 pounds of wettable sulfur per 100 gallons of water; for dusting; 325-mesh sulfur. When a planting is near diseased fields and weather is mild and humid, spray or dust a few days after emergence of the plants and repeat at weekly intervals until a few days before harvest. The same fungicides and practices are suitable for control of powdery mildew of lima beans.

Control of Downy Mildew

Downy mildew, a serious threat to cucumbers, cantaloupes, watermelons, and squash when weather conditions are favorable for it, is fairly well controlled with nabam, zineb, or Manzate. The spray solution: two quarts nabam, one pound zinc sulfate, and 100 gallons of water; or two pounds zineb and 100 gallons of water; or one and a half pounds Manzate and 100 gallons of water. In warm, damp weather, spraying should be started before the runners form and repeated about every three days; in fairly dry weather, applications may begin when runners are forming and repeated weekly until harvest.

A copper spray—four pounds tribasic to 100 gallons of water—has proven effective in preventing spread of angular leaf spot of cukes, cantaloupes, and squash. Use of disease-free

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seed has been found to be the best control, however. Treating infected seed for five to 10 minutes in a solution of one ounce of corrosive sublimate crystals and seven and one-half gallons of water, then rinsing in clean water and spreading to dry before planting has been found effective.

The most effective control for powdery mildew of English peas in Florida is a spray of 10 pounds of wettable sulfur and 100 gallons of water, applied at 10- to 14-day intervals after signs of the disease appear or often enough to control the disease.

Leaf Blight Control

Good control of Macrosporium leaf blight of carrots has been obtained with a nabam-zinc sulfate or ziram spray, applied when the plants are five to eight inches high and repeated weekly. The proportions: two quarts nabam and one pound zinc sulfate in 100 gallons of water, or two pounds ziram in 100 gallons of water.

Zineb and nabam-zinc sulfate sprays have proven most effective against notorious late blight of tomatoes. If zineb is used, experiment station workers recommend two pounds per 100 gallons of water; if nabam-zinc sulfate is used, the proportions are two quarts nabam and three-fourths pound zinc sulfate in 100 gallons of water.

Nabam and zineb also are the two most effective controls for late blight of potatoes in Florida. A spray solution of two quarts nabam, three-fourths pound zinc sulfate, and 100 gallons of water, or two pounds zineb and 100 gallons of water is recommended. In southern Florida, spray applications are started as soon as plants emerge and are continued at four- to five-day intervals until two or three weeks before harvest. Growers in the Hastings area begin spraying when the plants are six to eight inches high and repeat at four- to five-day intervals.

In control measures against most diseases that attack vegetables, experiment station and extension service workers emphasize that the fungicides should be considered primarily as preventives, not cures.

The most significant development in the use of fungicides in recent years in Florida has been the increasing use of the carbamates in place of bordeaux and other copper compounds. While copper is still considered most effective against some plant diseases, it has been replaced by the carbamates in efforts to control many other troubles.

Recent tests by agricultural experiment station workers have shown some newer compounds have promise for plant disease control, but research has not gone far enough with these to recommend them for commercial plantings. THE END

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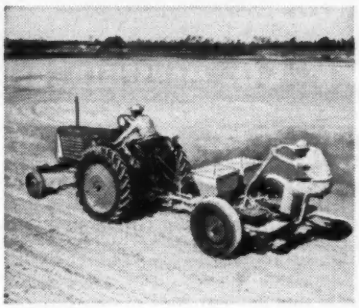

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SOIL FUMIGATION

(Continued from page 7)

stubby root, and pin nematodes as well as certain others are also now recognized as causing considerable damage to vegetables. The potato rot nematode and the golden nematode as well as the above forms are important pests of potatoes in certain areas.

The symptoms exhibited by the aerial portions of plants whose roots have been damaged by nematodes are not specific. If plants appear generally unthrifty, stunted, off-color, and wilt during the heat of the day for no obvious reason, they should be examined for plant parasitic nematodes. The symptoms caused by nematodes feeding on the roots of plants also is not specific and is similar to and difficult to differentiate from the symptoms caused by certain plant nutrient deficiencies and diseases. Thus it is important to know whether plant parasitic nematodes are present in or on the roots and in the surrounding soil.

Chemicals For Soil Fumigation

Chemicals and equipment have been developed within the last decade for the practical and economical control of various soil-borne plant pests. When applied to the soil these chemicals (soil fumigants) will volatilize and diffuse throughout the soil mass and destroy or greatly reduce the populations of nematode and insect pests that interfere with normal root development. This results in an increase in the quantity and improvement in the quality of the produce.

Methyl bromide-two per cent chloropicrin mixture (Dowfume MC-2) is satisfactory for the treatment of seedbeds. This material, normally a gas, is packaged as a liquid under pressure. It is released by a special applicator under a gas-proof cover, the sides of which are sealed with soil. The soil to be treated should be in a friable condition free from clods and with sufficient moisture for seed germination. The soil temperature should be above 60° F. for best results.

When applied at the proper dosage and under suitable conditions it will control nematodes, insects, many weeds, and certain diseases even in the upper layer of the soil. The treated soil can be used after a few days' aeration and is satisfactory for the production of quality transplants. In a few instances plant growth has not been satisfactory following fumigation of soil with methyl bromide. When using such treatment for the first time on a new soil or a new crop small-scale trials are recommended.

Two liquid fumigants, ethylene dibromide (Dowfume W-85) and dichloropropene-dichloropropane mixture (Shell DD) are available for

large-scale field application. They are effective against nematode and insect pests. Any disease control obtained with these materials is generally considered to be an indirect effect caused by the reduction of root feeding pests.

It is not necessary to use a gas-proof cover with these fumigants, however, the soil should be smoothed and compacted on the surface with a harrow or float immediately following application. Best results are obtained when soil moisture is at approximately field capacity, especially with the lighter soil types. If the soil is dry the fumigant will escape too rapidly and if wet it will not diffuse properly. Best results are usually obtained when soil temperatures are between 50° F. and 85° F., although these temperatures are not absolute limits.

Application Equipment

Two types of equipment can be used for field application—the chisel and the plow-sole applicator. Probably the most common is the chisel applicator which may be either tractor-mounted or a trailer type. When this machine is used for overall or broadcast treatment the fumigant is injected into the soil under pressure through tubes attached behind the shanks or chisels. The chisels are spaced 10 inches apart and the applications are made at a depth of from six to eight inches.

The soil should be free of clods, with the trash well buried, and worked into seedbed condition at the time of treatment. This type of equipment also lends itself to row application where the fumigant is applied only in the rows where the crop is to be planted. This is satisfactory for widely-spaced crops and considerable savings can be realized. However, it is imperative that the planted row be placed in the treated area. This type of application permits the young plant to become well established and generally results in improved returns.

Soil fumigants may also be applied at the time of plowing with a plow sole applicator. The fumigant is sprayed or dripped into the bottom of the furrow and is covered immediately by the next furrow slice. The plow should be followed immediately with a disk or harrow to level and compact the soil.

When to Apply

Under moderate temperature and moisture conditions crops can be planted 10 to 14 days after treatment. When conditions are adverse to rapid soil aeration, more time is required between fumigation and planting. In northern areas fall applications are more satisfactory than spring applications for early planted crops. In general, seeds are more tolerant to the fumigant than are transplants. Soil fumigants have given better results on light sandy soils than on heavy clay or highly organic (muck) soil types, however, increased dosages on these latter types give effective results. Generally it is necessary to make yearly applications of fumigants to nematode infested land which is planted to susceptible crops.

In Michigan and Indiana experiments have shown soil fumigants to be effective for the control of various nematodes attacking truck crops. On sandy soils good response has been shown with muskmelons, sweetpotatoes, sweet corn, beans, cabbage, cauliflower, squash, carrots, and radishes. Except where grower experience has proven it satisfactory, ethylene dibromide should not be used for onions. Either material is effective for Irish potatoes, carrots, celery, and other crops grown on muck.

Dosage

A minimum dosage of at least three gallons of actual ethylene dibromide (equivalent to four and one half gal-

(Continued on page 26)

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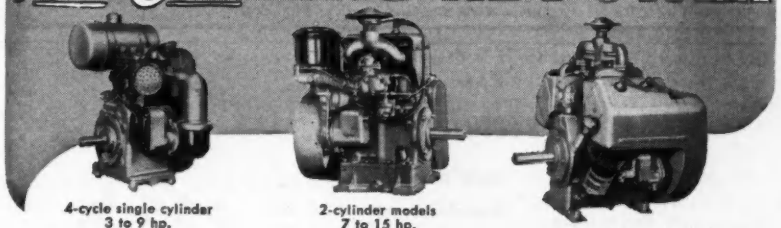

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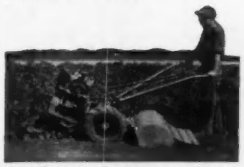

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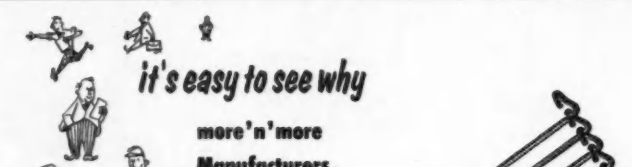

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EDWARD MEISTER, General Manager

106 Euclid Ave. **AMERICAN VEGETABLE GROWER** Willoughby, Ohio

SOIL FUMIGATION

(Continued from page 25)

lons of Dowfume W-85) or 20 gallons of dichloropropene mixture is satisfactory for the lighter soil types for overall treatments. Higher dosages are required on the organic and heavier soil types.

When nematodes and soil-borne insect pests are present in nursery land and areas where perennial fruit crops are grown soil fumigation will also aid in production. Certain soil fumigants have given good results for strawberries and have shown promise in nurseries and as an aid in establishing new cherry and peach orchards on old orchard lands. Dosages required depend upon the pests and crops involved but generally perennial crops require about twice the dosage as that used for annuals.

Under certain conditions not always understood, these fumigant materials when apparently properly used sometimes fail and they may also cause plant injury. Therefore until soil fumigation is an established practice for a particular crop in a given area it should be tried on a small scale.

Soil fumigants used for nematode control may all be safely handled if manufacturers' directions are carefully followed. Before applying fumigants users should study label directions carefully. THE END

HYBRIDS

(Continued from page 9)

of resistance or tolerance to mosaic, downy mildew, and bacterial wilt. Since that time Surecrop, Faribo, Sensation, and Foremost SL-1 hybrids have been introduced, each of which is vigorous and disease resistant, retaining their foliage until late in the season. All five are slicing cucumbers maturing early and continuing to yield over an extended period.

Plants of indeterminate fruiting habit such as cucumbers and tomatoes have been most successful where earliness of maturity is evident. This is equally true of hybrids in the squash group. Yankee Hybrid Summer Squash has been grown commercially since 1941. The fruit itself has many desirable horticultural characteristics. Its remarkable earliness, however, has made it the most popular yellow squash with many growers.

Zucchini Hybrid and Hybrid Cocozelle are both similar to the varieties from which they obtained their names. Both are earlier in maturity, however, than their varietal counterparts and for that reason are rapidly being adopted. Since season of maturity is

(Continued on page 29)

NEW FOR YOU

—to increase your profits

Big Help

We watched a demonstration of the Bolens Power-Ho tractor in a vegetable field last fall. Many new laborsaving attachments have been incorporated in the 1954 Bolens line. A major improvement in the tractor itself is the new Versa-Matic single lever control which gives the grower instant changes of forward speeds under full power, under loads, and without shifting belts or clutching. This new garden tractor has been engineered for the vegetable grower. You should look at Bolens' facts and figures on the '54 tractor. Write Earl Holsen at Bolens Products Div., Food Machinery & Chemical Corp., 316-7 S. Park St., Port Washington, Wis.

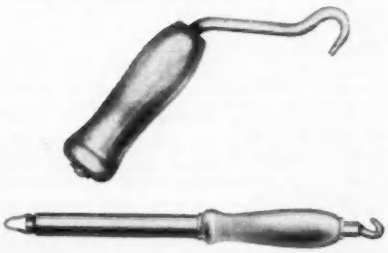
They Are Beauties

Just the other day we attended a preview of Chevrolet trucks for 1954. There are six major changes in the truck line which include: three new engines with increased horsepower, optional automatic transmissions through the one-ton range, increased durability, improved comfort for driver through a new Ride-Control seat, appearance improvement, and more space for payloads. If you are thinking of buying a new truck, be sure to write Charles French at Chevrolet Motor Division, General Motors Bldg., Detroit 2, Mich., and ask him to send you photographs and specifications of the new Chevrolet truck line.

Portable Generators

The need for a portable generator in the business of growing vegetables is increasing each day. One grower told me how he used a generator to run his irrigation system and welding equipment. One of the best lines of units on the market is the Wincharger Corporation's new "F" series models. All you have to do is write James Fenlon, Wincharger Corporation, Commerce Building, Sioux City, Iowa.

Tie 'Em Yourself



Many growers who are prepackaging and want to do it without investing in an expensive bag closing machine are having remarkable success with wire ties. One grower reports he can do the job of closing his vegetable bags as securely, easily, and almost as fast as a grower with automatic equipment. Wire ties come in standard lengths, and with Rapimatic tying tools, pictured above, the job can be done quickly. Why not write Harry Smith, American Wire Tie Company, Box 72, Gowanda, N. Y., for particulars? He will be glad to help you.

Water for Profits

Grower Ralph Tuthill of Long Island, N. Y., has increased his vegetable profits by means of modern irrigation equipment. He is particularly fond of his new Marlow irrigation pump which he says "is the heart of my entire irrigation system." Ralph says his system has paid for itself in one year. Why not write George Marlow, Marlow Pumps, Box 566, Ridgewood, N. J.? He will be glad to send you the latest information on planned Marlow irrigation systems.

It's Polyethylene

There is no doubt that polyethylene is very satisfactory for packaging fruits and vegetables. Visking Corp. has just announced a new polyethylene film developed by chemists and engineers at the company's research laboratories. Ink easily adheres to Visqueen "C", thus providing the grower good reproduction of his trade-mark or brand name. We suggest you write James Bunard, Visking Corp., Box AFG1-1410, Plastics Div., Terre Haute, Ind.

VARIETIES YOU SHOULD KNOW

Goldinhart Carrot

Among the special strains of leading vegetables introduced by us for Commercial Growers is this everywhere-popular Goldinhart Carrot, Burpee's strain of Red-Cored Chantenay. Bred for uniformity, trueness to type, deep color both inside and out, with small indistinct core.

Goldinhart, fine-grained and tender, grows 5 to 5½ in. long, 2¼ in. thick at shoulder; gradual taper to abrupt stump end. Delicate sweet flavor. Strong tops 14-16 in.

Heavy yield, high quality and its bright golden orange color make Goldinhart a favorite with growers, canners, freezers, also gardeners.

A. R. Jungeniger
MANAGER,
MARKET GROWERS DIVISION

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Only 25c a word for one-time insertion; 20c a word for two-time insertion; 15c a word for four-time insertion—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

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RUN A SPARE-TIME GREETING CARD and gift shop at home. Show friends samples of our new 1954 All-Occasion Greeting Cards and Gifts. Take their orders and earn up to 100% profit. No experience necessary. Costs nothing to try. Write today for samples on approval. REGAL GREETINGS, Dept. 58, Ferndale, Michigan.

AUTHORS SERVICE

BEGINNING WRITERS: GET $1 TO $20 checks daily writing simple children's stories, articles, poetry in your spare time. Experience unnecessary. Our instructions reveal how. Details FREE. W. HERMAN, 5927 Euclid, Cleveland 3, Ohio.

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GROW MUSHROOMS. CELLAR, SHED. Spare, full time, year round. We pay $3.50 lb. We paid Babbitt $4,165.00 in few weeks. FREE BOOK. WASHINGTON MUSHROOM IND., Dept. 127, 2954 Admiral Way, Seattle, Washington.

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DEPENDABLE INCUBATORS FOR HATCHing duck and goose eggs. All sizes. Guaranteed Hatching Eggs from Magnificient Rouen Ducks, massive in size, Four Varieties Geese, also Guineas. Illustrated Folder Free. GOSHEN POULTRY FARM, Goshen, Indiana.

FOR SALE—BUSINESS

TREE SURGERY AND LANDSCAPING BUSIness with or without equipment, a gold mine for right parties. TREE SERVICE, Box 705, S. Norwalk 17, Conn.

FOR SALE—EQUIPMENT AND SUPPLIES

GIANT DISPLAY AND SALE—NEW AND used orchard and potato equipment. February 24 and 25, 1954, Clark County Fairgrounds, Springfield, Ohio. For complete details write THE HOLLANDIA GARDENS, South Vienna, Ohio.

NEW TRESCOTT PACKING TABLE, MOTOR. J. Gibson, Sodus, New York.

1953 MODEL 36-L SPEED SPRAYER, VERY little use. 1953 35-T Bean sprayer. CORY ORCHARDS, Cory, Indiana.

QUANTITY OF GOOD NEW AND USED 1700 x 16 and 1600 x 16 tires and tubes, advisable to keep spare tire. Bargain priced. One Niagara Duster, used one season. Bargain priced. Write CORY ORCHARDS, Cory, Indiana.

GOOD USED BEAN SPEED SPRAYERS $850.00 and up. Guaranteed used high pressure sprayers. Truck mounted 500 gallon supply Unit $450.00. Write your used sprayer requirements. COLOMA FARM SUPPLY INC., Coloma, Michigan.

RECONDITIONED HIGH PRESSURE sprayers, PTO or engine, several sizes. Also used blower attachments. RILEY'S, Phone 425, Hart, Michigan.

WOODEN KEGS AND BARRELS—SAVE BY buying directly from largest wholesaler in U. S. Widespread plants mean lower freight charges. MASLOW COOPERAGE CORP., 16 Court St., Brooklyn, N. Y.

IRON AGE SPRAYER. 35 G.P.M. 500 GAL. steel tank. Wisconsin VP4 motor, starter and generator. 13.50 x 24 tires. Overhauled, A-1 condition. Priced right. LOWELL MUNROE, Williamsburg, Michigan.

CONCENTRATE SPRAY RIG. ENGINE driven Hardie 35, 400-Gal. Tank. 25 HP Aqua-Jet Blower used one season at 3X and 4X. Good condition guaranteed. Want to buy used Hale Sprayer. JAMES DEAN, Rt. 2, Geneva, Ohio.

50 GAL. TRAILER TYPE, HARDIE sprayer, 500 gal. tank. Fully equipped, in perfect condition. A bargain. WELDAY'S ORCHARD, Smithfield, Ohio.

LATE MODEL SPEED SPRAYER FOR SALE. Any reasonable offer. Box 54, Fairhope, Alabama.

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"HOW TO BREAK AND TRAIN HORSES"—A book every farmer and horseman should have. It is free; no obligation. Simply address BEERY SCHOOL OF HORSEMANSHIP, Dept. 1382, Pleasant Hill, Ohio.

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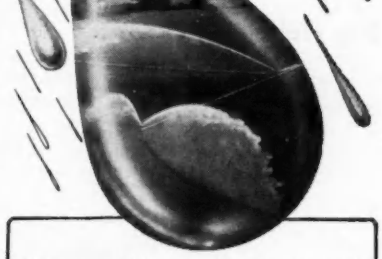

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FREE BOOK—PILES, FISTULA, COLONstomach, associated conditions. Newest scientific procedures. THORNTON & MINOR HOSPITAL, Suite C-212, Kansas City 9, Mo.

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NORTHERN GROWN EVERGREENS FOR sale. Christmas Trees, Windbreaks, etc. We grow finest varieties at lower prices. Free Circular tells how you can make good profits from waste land. VAN'S PINES, Box 13, West Olive, Michigan.

ADVERTISING PENCILS—KEEP YOUR business before the eye of the public. Write for samples and prices. EASTERN ARTCRAFT, P. O. Box 5233, Philadelphia 26, Pa.

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MAKE MONEY ADDRESSING ENVELOPES. Our instructions reveal how. PAUL GLENWAY, 5713 Euclid, Cleveland 3, Ohio.

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2000 for $3.00, 6000 for $8.40
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DELIVERY NOW UNTIL NEXT JUNE
SHIPPED BY EXPRESS, F.O.B. HERE
WRITE FOR OUR COMPLETE LIST
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BOX 666, OMAHA, TEXAS

CAN SUPPLY PREMIER GREAT LAKES, 423, and regular Great Lakes Lettuce Seed at attractive prices. Also Long Type Imperator and Regular Imperator Carrot Seed. GEORGE LOOMIS AND SONS, P. O. Box 367, Hemet, Calif.

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WANTED USED PLANET JR. WITH seeder and fertilizer attachment—good condition, low price. JOHN KLEMENTS, JR., Huntsburg, Ohio.

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VHPF
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Make gardening easy with the Ariens Yardster rotary tiller! Tills 12" wide, up to 6" deep. Non-winding, non-breakable steel "L" tines. Complete hood protection. 2 H. P. engine. Optional 2-speed wheel drive. Rotary mower, power sprayer and other attachments. Priced amazingly low!

See your dealer or write:

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183 Calumet Street — Brillion, Wisconsin

HYBRIDS

(Continued from page 26)

of less importance in winter squash less emphasis has gone into the production of hybrids of this type. Faribo hybrids R and G, however, are winter squashes which have recently been introduced to midwestern growers.

Early Maturing Watermelons

In watermelons where earliness of maturity is highly important F_1 hybrids have been introduced which combine this feature with desirable horticultural characters. Hybrid Dixie Queen, for example, is similar to the variety from which it was named but it is earlier in maturity and combined with this is Fusarium wilt resistance and good quality. Northland Hybrid and Faribo Hybrid 57 were also developed for growers in the North. Because of the relatively high seed cost there has probably been a greater acceptance among home gardeners than market gardeners to date.

F_1 hybrids of other vegetable crops are available including the OS Cross Cabbage, Vaughan and Faribo Hybrid Peppers, Black Magic and Superhybrid Eggplants, Four-Way Cross Asparagus, and probably others of which the author is not aware.

A discussion of hybrid sweet corn has been omitted for obvious reasons. The question with most market gardeners is not shall I use hybrid corn but rather which of the multitude of desirable sweet corn hybrids shall I use for my specific purpose.

Few of the hybrids previously mentioned are adapted to all vegetable production regions. In fact a phenomenon of this type is unusual in any plant material. It should therefore be remembered that the term hybrid is not going to be a guarantee against crop failure. Where adapted, however, and this may be determined from your agricultural extension service and experiment station or your reliable seed dealers, they may have definite benefits over pure line varieties upon which you as a grower may wish to capitalize.

It is unfortunate where a grower rushes headlong into extensive use of an F_1 hybrid which has not been adequately tested in his locality. Such behavior may cause a resentment against other hybrids which may be beneficial for his use. Awareness of the existence of hybrid vegetables and evaluation of their merits should be done on a similar basis to that in which you would determine the benefits of a variety. Improvements in technics including the use of various forms of plant sterility have provided the plant breeders with a tool for the production of F_1 hybrid seed at a cost which should not be prohibitive. THE END

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Thoughts on Soil Moisture

NEW information is coming out very rapidly on the water requirements of crops and how to satisfy these requirements for best possible production. What led to all the interest on soil moisture is recognition that we do have serious soil moisture problems, much more serious than ordinarily supposed. Study of southern New Jersey farms has shown that during the long growing season, from March to November, average daily deficiencies of almost one-half inch of rainfall or greater can be expected 99.9 per cent of the time. This means that while there may have been enough rainfall throughout the growing season, it did not fall constantly enough.

The Laboratory of Climatology at Johns Hopkins University in Baltimore has studied the problem of rainfall distribution as well as the water needs of crops. By means of these studies it is possible to know to the day when additional water is needed. Work of this kind will eliminate much of the guesswork from irrigation and save growers time and money.

As our nation becomes more and more industrialized the amount of water stored within the earth steadily diminishes. The amount of water used in one day by a modern factory is so large as to be breath taking. River and stream pollution further reduce the water supply while urbanization of areas with countless wells reaching down into the earth to suck out the moisture seriously lowers water tables.

Faced with these prospects, some moisture experts are coming around to the realization that water condensation in the form of dew can furnish a valuable part of the plant's water requirements. Some feel that the crop's ability to utilize dew depends on feeder roots near the ground's surface which in turn depends on the amount and kind of cultivation. The way corn seems to wilt after cultivation on a hot day would seem to bear out this line of reasoning.

A new thought on soil moisture deficiency comes from Missouri where researchers have shown that evidences of drought are somehow tied in with how fertile the soil is. They found that where corn was adequately fertilized, the crop exhausted soil moisture to a depth of neary four feet. Without fertilization, corn roots did not penetrate below two feet and the corn showed signs of serious wilting even though there was enough moisture below the two foot level to make mud balls.

Plants can tap subsoils of low nutrient content for needed moisture if there are sufficient nutrients in the top soil to permit extension of the roots. In many cases, it is believed, proper fertilizing can give as much stimulation to grain as can be obtained by adding water. Does this mean that rate of fertilization should depend to some extent on soil moisture levels?

The soil moisture problem seems to grow more complex the more it is studied. The various considerations deserve every grower's careful analysis for it seems likely that some changes in crop production practices are in store for us as more evidence is uncovered.

Supply Outlook for 1954 Was Never Brighter

THE year 1954 promises to be the most favorable of any in the past three for plentiful supplies of trucks and farm equipment, fertilizers, pesticides, weed killers, and all the many other items necessary for growing and selling vegetable crops. There seem to be only two items which may cause some trouble. One is that perennial worry—labor. However, supplies of manpower for spring vegetable operations should be at least equal to those of a year ago.

The other item expected to be in short supply is one of science's newest developments, polyethylene film which has the almost magical property of allowing gases to escape but prevents the passage of water vapor. It is used for bagging vegetables and since the material is constantly finding new uses, supply has not kept pace with demand. In the next three years, it is expected that new production facilities will more than triple the supply of polyethylene so the shortage should be short lived.

On the farm machinery front, all types of new machinery, equipment and repair parts should be available without any waiting. Even crawler tractors are in moderately free supply. Orders for portable irrigation equipment such as aluminum pipe and revolving sprinkler heads should be placed in advance of need. Production of this type of equipment is barely keeping up with a steadily rising demand.

Nitrogen, phosphorus, and potash will be supplied at a greater rate than the record year of 1952-53 as a result of an expansion of fertilizer production capacity. The problem is one of storage space and keeping supplies moving to the farm. For this reason, it is a good idea to order well in advance of need to allow ample time for delivery.

There is plenty of productive capacity for pesticides but manufacturers may be reluctant to build up inventories adequate to control unusual infestations if they should develop in 1954. Therefore, it is wise to take steps early to assure a supply for at least minimum needs. The synthetic organics such as DDT, chlordane, aldrin, methoxychlor and the organic phosphates will be produced in adequate amounts for normal needs. Imports of rotenone are falling off and if rotenone requirements should increase suddenly, a shortage might develop. All fungicides should be in adequate supply as well as weed killer chemicals such as 2,4-D, chloro IPC, Crag Herbicide and others.

The supply of boxes, crates, baskets and hampers, as well as burlap, cotton and paper bags is ample and no difficulty should be experienced on this score. Transportation facilities including rail and truck should move vegetables to market with no trouble in 1954 although temporary localized shortages may occur because of the probem of car and truck distribution. This means planning harvest dates in advance and keeping rail and truck people well advised.

The number one shortage problem for the country as a whole is labor. More and more it is necessary to provide attractive employment conditions including adequate housing and continuous employment on a year round basis. At the same time close co-operation with local employment service offices is necessary so that what labor is available is utilized efficiently and moved promptly from farm to farm as needed.

Everything considered, the outlook is as good as can be expected. The key to avoiding shortages in '54 is making comprehensive plans well in advance in order to determine needs. Don't wait until the last moment.

Spray and Dust Rolls Around Plants with Buffalo Turbine Concentrate Sprayer

IN SPRAYING or dusting vegetable plants it is important to obtain complete coverage of the plants. A thin layer of protective spray or dust must envelope the plant including the under sides of the leaves. Turbulent air as a carrier for controlling chemicals has been found to be the most effective way of applying such materials. In the Buffalo Turbine the air discharge can be adjusted from a gentle breeze to a hurricane of 175 M.P.H. Such turbulence gives control and penetration over broad areas which is not possible with spray booms. Air blast reaches nooks, corners and places usually inaccessible.

Over 1600 Turbines Now in Operation All Over the World

Labor costs have been reduced as much as 80% with the Buffalo Turbine Sprayer—Dusters. This information comes from actual users and is based on full seasons operation. Only one man is needed to operate the Buffalo Turbine Sprayer—Duster.

Using the new highly concentrated chemicals, and by mist spraying, the amount of liquid used is reduced by about 90%. This, plus the fact that the Turbine itself weighs only about one-fourth as much as a standard conventional sprayer, is an important factor especially in the early Spring and in wet weather.

Michigan Grower Compares Buffalo Turbine With Others

"As you know it was the middle of the dusting season before I purchased my machine, so I had a good opportunity to check the kill of the Turbine applied insecticides against my Row Crop duster. My first dustings were applied with my row crop duster and I used from 35 to 40 pounds of dust on an acre and got just a fair kill. I then started using the Turbine and found that while using less dust the coverage was much better and for the rest of the season I had a 100% kill. I might add that at first I was fearful that I did not have enough dust on the plants, but on examining them I found that there was a perfect film of dust on both sides of the plants. The rolling action of the dust enveloped the plants and dust seemed to boil in the rows a long time after being dusted.

"This last year I dusted about 70 acres with the Turbine, consisting of beans, sweet corn, cabbage, cauliflower, cucumbers, tomatoes and squash. I was able to do on an average of 12 acres an hour and would again say that the dust is put where needed with the Turbine, this especially showed up on cabbage and cauliflower where I was able to get dust on the under side of the leaves and also down into the heart of the plant. During dry season I used water with the dust to make it stick and found this to be a very decided advantage for this machine. I am planning on spraying all my peas this year also.

"I think that this machine is one of the most practical pieces of equipment that can be used in my type of farming. The saving in time and materials in the past season made a very good payment on the machine and also being able to apply the material at the proper time aided in having clean crops."

Won't you be sure to call on us at your vegetable show? If, for any reason, you cannot attend, drop us a line so that we can help answer your questions through actual demonstration.

BUFFALO TURBINE
AGRICULTURAL EQUIPMENT COMPANY, INC.
SOWANDA, NEW YORK

CALIFORNIA WONDER

We offer three distinct types of this popular pepper, developed at the Asgrow breeding stations—an Eastern strain (shown above) and a Western strain, to meet the differing standards of those areas; another strain is our Early Calwonder, which matures about a week earlier, with somewhat smaller fruits. For areas infested with tobacco mosaic, we recommend Yolo Wonder.

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